

WE CLAIM:

1. A telescoping catheter adapted for use within a human body, the catheter comprising:
  - a proximal end;
  - a telescoping section comprising a distal end;
  - 5 a cable extending from the proximal end to the distal end;
  - a first sheath coupled to the proximal end, the first sheath extending distally along the cable and substantially surrounding the cable when the catheter is fully retracted;
  - a second sheath coupled to the distal end, the second sheath extending proximally from the distal end and substantially surrounding the cable when the catheter is fully retracted, the
  - 10 second sheath adapted to slideably engage the first sheath so as to extend or retract the catheter;
  - and
  - a third sheath coupled to the distal end and located within the second sheath, the third sheath extending proximally along the cable and closely surrounding the cable from the distal end to a point within the first sheath when the catheter is fully extended, the third sheath adapted
  - 15 to slideably engage the first sheath.
2. The catheter of claim 1, wherein the third sheath is adapted to slide within the first sheath.
3. The catheter of claim 1, wherein the third sheath is formed of polymer.
4. The catheter of claim 3, wherein the polymer comprises polyetheretherketone.
5. The catheter of claim 3, wherein the polymer comprises polyimide.
- 20 6. The catheter of claim 1, wherein one end of the third sheath is coupled or connected to a hub at the distal end of the telescoping section.

7. The catheter of claim 1, wherein the first sheath is adapted to slide in a female relationship with the third sheath, and a male relationship with the second sheath.

8. The catheter of claim 1, wherein the proximal end comprises a flush port housing.

9. The catheter of claim 1, further comprising a spacer that couples the third sheath to the distal  
5 end.

10. The catheter of claim 9, wherein the spacer includes a plurality of radially-spaced lumens.

11. The catheter of claim 9, wherein the spacer includes a central lumen.

12. A telescoping catheter comprising:

a cable extending longitudinally along the catheter;

10 a telescoping section extending longitudinally along the catheter, the telescoping section comprising a distal end;

a flexible inner sheath defining a first lumen for housing the cable;

a flexible outer sheath defining a second lumen, the outer sheath adapted to substantially surround the inner sheath; and

15 a flexible telescoping sheath adapted to telescope within the second lumen and defining a third lumen adapted to substantially surround the inner sheath when the catheter is fully retracted,

wherein the inner sheath closely surrounds the portion of the cable that lies between the distal end of the telescoping section and a proximal end of the outer sheath when the catheter is  
20 fully extended.

13. The catheter of claim 12, wherein the outer sheath is adapted to substantially surround the inner sheath within the second lumen.

14. The catheter of claim 12, wherein the inner sheath and the outer sheath are fixed in relationship to each other, and the telescoping sheath is adapted to slide in a telescoping manner  
5 between the outer sheath and the inner sheath.

15. The catheter of claim 12, further comprising a proximal end and a member located distally from the proximal end, wherein the telescoping sheath is attached to the proximal end and the inner and outer sheaths are attached to the member.

16. The catheter of claim 12, further comprising a proximal end and a member located distally  
10 from the proximal end, wherein the inner and outer sheaths are attached to the proximal end, and the telescoping sheath is attached to the member.

17. The catheter of claim 12, wherein the first lumen is adapted to receive the cable.

18. The catheter of claim 17, wherein the cable comprises a fiber optic channel.

19. The catheter of claim 17, wherein the cable comprises an electrically conductive cable.

15 20. The catheter of claim 12, wherein the inner sheath is formed of polymer.

21. The catheter of claim 20, wherein the polymer comprises polyetheretherketone.

22. The catheter of claim 20, wherein the polymer comprises polyimide.

23. The catheter of claim 12, further comprising a spacer that couples the inner sheath to a distal end of the catheter.

24. The catheter of claim 23, wherein the spacer includes a plurality of radially-spaced lumens.

25. The catheter of claim 23, wherein the spacer includes a central lumen.